In the Claims:

1. (Currently Amended) A method for disturbance sensing in a drive system of a numerically controlled machine tool, in which at least one drive motor for positioning a machine part is coupled via one or more transmission elements to the machine part, the method comprising the steps of:

a) measuring a position of [the] <u>a</u> moving machine part directly on the machine part and also indirectly at at least one location in a transmission chain;

b) comparing the direct and indirect position measured values; and

c) using the comparison between the direct and indirect positions value to record a disturbance with consideration of [the] actual operating conditions on fulfillment of a prescribed criterion.

2. (Original) A method as defined in claim 1, wherein the indirect measurement of the position of the machine part being moved is conducted on the drive motor.

3. (Original) A method as defined in claim 1, wherein a difference value between the direct and indirect position measured values is used as criterion for recognition of a disturbance.

4. (Original) A method as defined in claim 3, wherein the difference value is compared with one or more prescribed threshold values, the one or more prescribed threshold values being determined with consideration of actual operating conditions, and wherein predetermined measures are automatically initiated on at least one of reaching and surpassing the one or more prescribed threshold values.

5. (Original) A method as defined in claim 4, wherein the actual operating conditions include at least one of inertial forces during acceleration of the moving machine part, process forces of work place machining and friction forces in the drive system

6. (Original) A method as defined in claim 4 wherein a calibration procedure is performed to determine machine-specific threshold values in which machine-specific standard disturbance situations are run.

7. (Original) A method as defined in claim 1 wherein collision sensing is performed through the use of determining a difference value between the direct and indirect position measured values and considering the actual operating conditions.

8. (Original) A method as defined in claim 7, wherein disengagement of at least one of advance movement of the moving machine part and reversal movement of the moving machine part is initiated directly after collision sensing.

9. (Original) A method as defined in claim 7 wherein possible damage is evaluated after collision sensing with consideration of at least one of a determined collision direction, a collision speed and a collision depth and correction is activated to prevent damage when necessary.

10. (Original) A method as defined in claim 7, further including a preventive collision protection method used in combination with collision sensing.

11. (Original) A method as defined in claim 10, wherein the machining process is monitored by an active collision protection system and collision monitoring is initiated by difference formation of the direct and indirect position measured values only upon failure of the active collision protection system.

12. (Currently Amended) A device for disturbance sensing in a drive system of a numerically controlled machine tool in which at least one drive motor for positioning of a machine part being moved is coupled via one or more transmission elements to the machine part, the device comprising:

a) a direct measurement system connected to ~~the~~ a machine part being moved by the least one drive motor configured to measure an actual position of the machine part being moved;

b) an indirect measurement system configured to indirectly determine a position of the [moving] machine part being moved located at at least one location in a transmission chain; and

c) a control unit configured to compare determined position measured values and to determine a disturbance when the comparison of the determined position measured values fulfills a prescribed criterion.

13. (Original) A device as defined in claim 12, wherein the direct measurement system is a linear measurement system connected to the machine part being moved.

14. (Original) A device as defined in claim 13, wherein the linear measurement system is a phase grating length measurement system.

15. (Original) A device as defined in claim 13, wherein the linear measurement system has a stationary phase grating scale and a vertical resonator laser scanning sensor coupled to the machine part being moved.

16. (Original) A device as defined in claim 12, wherein the indirect measurement system is a rotation angle sensor that is one of directly and indirectly coupled to a rotor shaft of the drive motor.

17. (Original) A device as defined in claim 12, further comprising:

an active collision protection system used in conjunction with the device for disturbance sensing, wherein the device for disturbance sensing is activated when one of a defect and a failure of the active collision protection system occurs.

18. (Original) A device as defined in claim 17 further comprising:

a proximity sensor connected to the moving machine part and configured for use as the active collision protection system.

19. (Original) A device as defined in claim 17, further comprising:

an image processing system configured for use as the active collision protection system and further configured to record the size and position of elements in a work space of the machine tool.

20. (Previously Presented) A method for disturbance sensing in a drive system of a numerically controlled machine tool, the machine tool including a drive motor operatively coupled to a machine part by a transmission chain, the method comprising the steps of:

a) taking a first position measurement of the machine part, the first position measurement taken directly at the machine part and being indicative of a first X position, a first Y position, and a first Z position in a Cartesian coordinate system;

b) taking a second position measurement of the part, the second position measurement taken indirectly at a location in the transmission chain and being indicative of a second X position, a second Y position, and a second Z position in the Cartesian coordinate system;

c) comparing the first and second position measurements to arrive at a position difference value; and

d) using the position difference value to record a disturbance with consideration of the actual operating conditions on fulfillment of a prescribed criterion.